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# SCIENCE

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## GRADUATE MATHEMATICAL INSTRUCTION FOR GRADUATE STUDENTS NOT INTENDING TO BECOME MATHEMATICIANS<sup>1</sup>

In his "Annual Report" under date of November last, the President of Columbia University speaks in vigorous terms of what he believes to be the increasing failure of present-day advanced instruction to fulfil one of the chief purposes for which institutions of higher learning are established and maintained.

President Butler, in the course of an interesting section devoted to college and university teaching, says:

A matter that is closely related to poor teaching is found in the growing tendency of colleges and universities to vocationalize all their instruction. A given department will plan all its courses of instruction solely from the point of view of the student who is going to specialize in that field. It is increasingly difficult for those who have the very proper desire to gain some real knowledge of a given topic without intending to become specialists in it. A university department is not well organized and is not doing its duty until it establishes and maintains at least one strong substantial university course designed primarily for students of maturity and power, which course will be an end in itself and will present to those who take it a general view of the subject-matter of a designated field of knowledge, its methods, its literature and its results. It should be possible for an advanced student specializing in some other field to gain a general knowledge of physical problems and processes without becoming a physicist; or a general knowledge of chemical problems and processes without becoming a chemist; or a general knowledge of zoological problems and processes without becoming a zoologist; or a general

MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

<sup>1</sup> An address delivered before Section A of the American Association for the Advancement of Science, December 30, 1914.